



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY  
REGION IX  
75 Hawthorne Street  
San Francisco, CA 94105  
SFD 8-3

N00236.001899  
ALAMEDA POINT  
SSIC NO. 5090.3

November 1, 2004

Thomas Macchiarella  
BRAC Operations, Code 06CA.TM  
Department of the Navy, Southwest Division  
Naval Facilities Engineering Command  
1230 Columbia Street, Suite 1100  
San Diego, CA 92101

RE: **Revised Draft Feasibility Study Report Installation Restoration Site 26, Alameda Point**

Dear Mr. Macchiarella:

EPA has reviewed the above referenced document, prepared by Bechtel Environmental, Inc and submitted by the Navy to the agencies on August 1, 2004. EPA requested a 30 day extension for review of the document, in accordance with the FFA, making our comments due on November 1, 2004. The Revised Draft Final Feasibility Study for Site 26 will be due for submittal by the Navy on January 3, 2005.

We have enclosed our comments on the Site 26 Revised Draft Feasibility Study, and look forward to discussing them with you. I can be reached at (415) 972-3029.

Sincerely,

A handwritten signature in cursive script, reading "Anna-Marie Cook".

Anna-Marie Cook  
Remedial Project Manager

enclosure

cc list next page

cc list: Glenna Clark, SWDiv  
Marcia Liao, DTSC  
Judy Huang, RWQCB  
Elizabeth Johnson, City of Alameda  
Peter Russell, Russell Resources, Inc  
Lea Loizos, Arc Ecology  
Jean Sweeney, RAB Co-Chair  
Suzette Leith, EPA  
Sophia Serda, EPA  
Karla Brasaemle, TechLaw Inc

**EPA Review of the Revised Draft Feasibility Study Report  
Installation Restoration Site 26, Alameda Point**

**GENERAL COMMENTS**

1. EPA disagrees with having ICs prohibiting residential use of the groundwater; rather, the ICs should prohibit residential use of the property. Prohibiting residential use of the property is consistent with the reuse plan for this site, and would be a more secure way of protecting against accidental ingestion, e.g. by the child of a resident. EPA thinks an IC of this type is necessary at this site where the groundwater is shallow, and private wells are common in Alameda.
2. EPA's preference would be to determine that MCLs are appropriate and relevant requirements (ARARs) for this action. The Navy has acknowledged that this is Class II drinking water. Under the NCP, MCLs are generally considered to be ARARs for Class II water, and CERCLA itself specifically lists drinking water regulations as potential ARARs. Because MCLs are "generally" considered to be ARARs, EPA does not categorically insist that every Class II water must be cleaned up to MCLs under CERCLA clean up actions, and we acknowledge that EPA staff have agreed that actual use of this particular water for drinking is unlikely. However, a very strong showing must be made in order for EPA to agree to a deviation from the general policy. Consideration needs to be given to particular factors at the site, e.g., this groundwater is shallow, is in an area of high population, is located above an aquifer that does have the characteristics of potential drinking water, and there are wells located within a mile of the site. Additionally, in order to not select MCLs as ARARs, there needs to be a showing that protective risk-based PRGs would be used, and there would be no unacceptable risks based on accidental or illegal ingestion of the water. At this site, EPA might be able to concur with not including MCLs as ARARs if the PRGs were sufficient to protect against any inhalation threat, and if strict ICs were imposed to prohibit residential use of the property (not just residential use of the groundwater -- see comment above).
3. EPA recommends that the FS consider contingent remedies to address the possibility of the reuse being changed to residential. Under a residential scenario, EPA would consider the MCLs to be relevant and appropriate standards. EPA recognizes that the reuse plan could change after transfer of the property. In that situation, EPA may be willing to enter into an enforceable agreement with the transferee under which the transferee would perform the additional cleanup, if the transferee and Navy prefer that approach.
4. EPA believes that the proposed RAOs are adequate to protect human health from the inhalation threat posed by indoor vapors for the current industrial scenario, but not for the current residential scenario. Therefore, institutional controls prohibiting use of the property for residential purposes will need to be implemented if the RAOs are set for current concentrations of contaminants in the groundwater. EPA is concerned that the

continued degradation of DCE to vinyl chloride has not been considered in the risk assessment for future industrial and residential scenarios. It is likely that the concentration of vinyl chloride will increase in the future, also increasing the risk from inhalation and, of course, ingestion. Thus, the Navy will be obligated to perform semi annual (dry season and wet season) monitoring for the life of the institutional controls to ensure that the concentrations of vinyl chloride do not exceed the RAO of 18 ppb in any portion of the plume. EPA will require annual reporting of sampling results as part of the performance measures established to ensure that the ICs continue to remain protective.

5. The FS is confusing as to what the Navy considers to be the risks, and what are the remediation goals designed to protect against those risks. The risk assessment (p. 2-9) indicates that the primary risks are for residential use. Ingestion, dermal, and vapors (showers) all are above 10(-6) (ingestion is significantly above that). Yet the RAO Table ES-1 (or 3-2) does not include these risks under "exposure route," and it does not appear that the remediation goals were designed to address these risks. Conversely, the indoor air exposure pathway indicates that any risks are below the risk management range, yet Table ES-1 (and 3-2) concentrates on this exposure route.
6. Throughout the FS, the Navy uses 30 years as the time frame for estimating the duration of ICs for five of the seven alternatives. This is problematic for several reasons:
  - (a) For ICs as the sole remedy, it would appear that the assumption would have to be that the ICs would remain in effect indefinitely.
  - (b) The previous FS indicated that the MNA would take 70 years; thus, for that alternative, the duration of the ICs would appear to be 70 years.
  - (c) It does not appear reasonable that ICs would need to be in place as long for the active remedies as for MNA.
  - (d) Even for costing purposes, recent EPA guidance on costing indicates that the blanket use of a 30-year period for cost analysis is not recommended, and that site-specific justification should be provided for the actual period of analysis selected. (OSWER 9355.0-75, *A Guide to Developing and Documenting Cost Estimates During the Feasibility Study* (2000), p. 4-2).
7. For some of the active remedies, the FS indicates that there will need to be several years of ICs after the active remedy has been performed. This suggests that the remedy is actually a combination of active remedy plus MNA. However, this is not discussed. As noted above, EPA questions why ICs would need to be in place as long for the active remedies as for MNA or for ICs alone.
8. EPA is not comfortable with the Navy's response to EPA's comment (see p. 14 of RTC) indicating that "the land-use restriction may be released if the transferee demonstrates to the Navy and USEPA, DTSC, and the SFRWQCB that dermal contact and inhalation of VOC groundwater vapors during showering no longer poses an unacceptable threat to human health." This response ignores the possibility of ingestion, including accidental

ingestion. Our recommendation is that the ICs prevent residential use of the property and that these ICs could not be lifted until there is a demonstration that the groundwater has been remediated to levels which meet MCLs and also inhalation risk-driven numbers.

## **SPECIFIC COMMENTS**

1. **Page ES-1, third paragraph, third sentence:** EPA is unaware of any agreements reached by the BCT regarding the storm sewer lines beneath IR 26 being treated under the radiological program. On the contrary, storm sewers were previously designated as IR 18 and then reconfigured to be treated as components of each IR site. Therefore, the storm sewer system beneath site 26 needs to be included in this FS.
2. **Page ES-2, last paragraph:** Please provide the results of the storm sewer geotechnical analyses. EPA's recollection of the storm sewer study is that the soil samples were taken five to ten feet away from the storm and sewer pipes and thus would not be representative of bedding material. In addition, Navy contractors working on the removal of radiologically contaminated portions of the storm sewer have stated that the pipes were laid in gravel material that has decomposed over the years, but still retains a significantly different porosity characteristic from the artificial fill.
3. **Page ES-5, Groundwater Confirmation Sampling:** Confirmation sampling is not a stand-alone remedial technology and may only be used to support other remedial actions.
4. **Page 1-1, last paragraph, page 1-2, first paragraph :** EPA is unaware of any agreements reached by the BCT regarding the storm sewer lines beneath IR 26 being treated under the radiological program. On the contrary, storm sewers were previously designated as IR 18 and then reconfigured to be treated as components of each IR site. Therefore, the storm sewer system beneath site 26 needs to be included in this FS.
5. **Section 2.2, Previous Investigations, Page 2-1:** The FS refers to the collection of soil and soil gas samples during the Remedial Investigation (RI), but the results of this sampling are not provided. For clarity and completeness, and to better evaluate the conclusion that there is no continuing source of contaminants in the vadose zone, please revise the FS to include a summary of soil and soil gas sampling results and include the sample locations on a figure, including depths and analytical results.
6. **Section 2.3, Physical Setting, Page 2-3:** The FS states that the upper Bay Sediment Unit (BSU) is expected to inhibit vertical migration of chemicals to deeper aquifers; however, it appears that the actual vertical migration of chemicals at Site 26 has not been evaluated. According to comments by the Department of Toxic Substances Control (DTSC) Geological Services Unit on the Draft FS, the effectiveness of the BSU for inhibiting vertical migration of contaminants at Site 26 is unknown. Therefore confirming the continuity of the BSU beneath the Building 20 plume area will not be

sufficient to demonstrate that contaminants will not migrate vertically. The FS includes potential installation of one deeper well. Data should be collected at Site 26 to demonstrate the effectiveness of the BSU in inhibiting vertical migration of contaminants even if this unit is found to be continuous at Building 20. Please revise the FS to include at least one well in the second water bearing zone at Building 20, or include some other method of confirming the effectiveness of the BSU.

7. **Page 2-8, second paragraph:** Please provide the results of the storm sewer geotechnical analyses. EPA's recollection of the storm sewer study is that the soil samples were taken five to ten feet away from the storm and sewer pipes and thus would not be representative of bedding material. In addition, Navy contractors working on the removal of radiologically contaminated portions of the storm sewer have stated that the pipes were laid in gravel material that has decomposed over the years, but still retains a significantly different porosity characteristic from the artificial fill.
8. **Page 2-9, last paragraph:** EPA is concerned about the validity of the indoor air risks presented in this section for two reasons. Firstly, the risk calculation have been based on soil gas sampling performed with groundwater at two feet below ground surface which makes the results of the soil gas questionable. Secondly, the risk calculations are performed only for a current scenario and do not factor in future scenarios where the DCE as potentially degraded further into vinyl chloride, with resulting higher concentrations and therefore higher risk associated with the vinyl chloride inhalation pathway. EPA was not very concerned about the inhalation pathway in the previous version of the Feasibility Study because the groundwater was proposed to be cleaned to MCLs which would have eliminated the indoor air risk as well as the ingestion risk from groundwater.
9. **Page 3-4, Note b:** EPA is skeptical about the results of modeling natural attenuation at Building 20 given the lack of natural attenuation parameters measured in groundwater at the site to date and the absence of any trend data. (See page 4-13 for additional support for this position).
10. **Page 3-4, 3-5, Section 3.3.2.:** It is not correct to state that EPA considers the groundwater beneath Site 26 to not be a drinking water source. EPA has stated that it is unlikely that the groundwater will be used as a drinking water source. However, the groundwater still meets the federal criteria for a Class II aquifer which means it still remains a potential drinking water source. EPA has stated that for CERCLA clean up purposes, given the unlikelihood of the groundwater being used for drinking water, the groundwater may not need to be cleaned up to MCLs when PRGs are sufficient to protect against threats from exposure pathways other than ingestion.
11. **Page 3-6, 3-7, Section 3.4:** EPA is concerned that all risk calculations have focused on current scenarios and have not addressed the problem of potential degradation of DCE into vinyl chloride. Higher concentrations of vinyl chloride in the groundwater may

significantly increase the risks from inhalation and of course from ingestion. Again, EPA was not very concerned about the continued degradation of DCE into vinyl chloride in the previous version of the Feasibility Study because the groundwater was proposed to be cleaned to MCLs which would have eliminated the indoor air risk as well as the ingestion risk from groundwater.

12. **Section 3.4.5, Remedial Action Objectives for the Building 20 Plume, Page 3-8:** The listed concentrations may not actually be the maximum concentrations at the site because the extent of contamination has not been fully delineated. Please discuss how the extent of the contaminant plume north of 26B46 and 192-004-018 will be evaluated, taking into consideration the possibility that a single monitoring well may not be sufficient to delineate the extent of this plume.
13. **Section 4.3.1.1, Lines of Evidence, Pages 4-12 and 4-13:** The listed lines of evidence do not include analysis of electron acceptor and electron donor concentrations. It is not sufficient merely to calculate changes in the apparent mass of contaminants as changes in electron acceptor/donor concentrations can be directly correlated to production of daughter compounds. It is recommended that EPA guidance documents *Performance Monitoring of MNA Remedies for VOCs in Ground Water* (OSWER 9355.4-25, September 2003) and Technical Protocol for Evaluating Natural Attenuation of Chlorinated Solvents in Ground Water (EPA/600/R-98/128, September 1998) be reviewed to develop more comprehensive lines of evidence.
14. **Section 4.3.1.1, Lines of Evidence, Page 4-13:** The basis for the statement that mildly reducing conditions are present is unclear. For example, specific evidence (e.g., oxidation-reduction potential [ORP] data) was not presented. In addition, since there is no trend data, the original concentration of parent compounds is unknown. Further, it is difficult to obtain an accurate representation of the vinyl chloride concentration in groundwater because the volatility of this compound renders it likely that vinyl chloride was lost during sampling unless measures were taken to prevent this loss. As a result, it is possible that the detected concentration of vinyl chloride is lower than the concentration actually present in groundwater. Please discuss sampling techniques and evaluate whether vinyl chloride could have been lost during sampling and present specific evidence that “mildly reducing conditions” are present.
15. **Table 4-3, Screening of Remedial Technologies and Process Options and Section 4.3.8.4, Permeable Reactive Barriers, Page 4-19:** The most effective use of zero-valent iron (ZVI), specifically, as an in-situ treatment technology, does not appear to have been considered. ZVI has been used effectively at Hunters Point Shipyard to treat plumes with chlorinated solvents of various concentrations. Please explain why this technology was not considered.

16. **Section 5.1.2, Alternative 2 - Groundwater Confirmation Sampling, Page 5-2 and Appendix E, Section E2.1, Alternative 2 - Groundwater Confirmation Sampling/ICs, Page E-4:** It is not clear why the same suite of analyses is proposed for this alternative as is proposed for monitored natural attenuation (MNA). It appears that analyses that are required to demonstrate natural attenuation would not be necessary to demonstrate plume stability. It appears that VOC concentrations alone should be adequate to demonstrate plume stability. Please revise this alternative to include only the cost of VOC analysis or provide justification for the additional analyses.
17. **Section 5.1.3, Alternative 3 - MNA/ICs, Page 5-3 and Appendix E, Section E2.2 Alternative 3 - MNA/ICs, Page E-5:** The same analytical suite appears to be proposed for the entire duration of MNA monitoring; however, it appears that after MNA is demonstrated in the first few years, fewer analyses may be required to monitor its progress. To make the comparison of alternatives as meaningful as possible, please revise the proposed analytical suite to include only what is likely to be required to demonstrate progress after MNA is demonstrated.
18. **Section 5.1.4, Alternative 4 - ISB Source Area Treatment/Groundwater Confirmation Sampling/ICs, Page 5-3 and Section 5.1.5 Alternative 5 - ISCO Source Area Treatment/Groundwater Confirmation Sampling, Page 5-4:** It is not clear why the duration of ICs is the same in this alternative as in Alternatives 2 and 3. It appears that since the source area treatment is intended to accelerate the reduction of contaminant concentrations, the duration would consequently be reduced. Also, the basis for the 30 year duration is not clear. In order to allow a meaningful comparison of alternatives, please revise the FS to include a realistic evaluation of the time required to achieve RAOs, and use that evaluation as the basis for the duration of ICs. In addition, please revise this alternative to continue monitoring at some frequency throughout the 30 year duration of the alternative, if the time to achieve RAOs is greater than 30 years.
19. **Section 6.2.2.1, Overall Protection of Human Health and the Environment, Page 6-5:** This section states that under Alternative 1 "natural attenuation processes would eventually reduce chemicals to acceptable concentrations;" however, since the RAOs, as defined, may already have been met under existing conditions, it is not clear what are considered "acceptable concentrations." The FS indicates that when acceptable concentrations are reached, ICs would no longer be required. It appears, then, that the undefined "acceptable concentrations" should actually be the RAOs for the site. However, the no action alternative does not include groundwater monitoring or delineation of the extent of the plume, so it is unclear how changes in chemical concentrations would be determined. Further, the no action alternative should not assume natural attenuation. Please resolve these discrepancies and also revise Section 6.2.2.4 as necessary.
20. **Description of the IC remedy (p. 6-7)** should also include monitoring and reporting on the ICs. The cost analysis should also include at least annual monitoring of the



effectiveness of the ICs (not just the groundwater samples) and at least annual reports to regulators on the status of the ICs.

21. **Section 6.3.1.3, Groundwater Sampling and Analysis, Page 6-8:** The text states, "Definition of the extent of the Building 20 plume to the north would also be completed," but it is not clear how this will be accomplished since only one monitoring well is proposed for the area north of 26B50. It is possible that contamination extends beneath the building, but it does not appear that there is any provision for evaluating this possibility. Please specifically discuss how the extent of the Building 20 plume to the north will be assessed, particularly if contamination extends beneath the building.
22. **Section 6.3.2.4, Reduction of Toxicity, Mobility, or Volume Through Treatment, Page 6-10:** The text states, "Alternative 2 would reduce the mobility and toxicity of VOCs through natural attenuation," so it is unclear how Alternative 2 differs from Alternative 3 (MNA - ICs) other than the duration of sampling (3 years for Alternative 2; 30 years for Alternative 3), since the suites of analytical parameters appear to be the same for both alternatives.
23. **Section 6.5.2.7, Cost Effectiveness, Page 6-20; Appendix E, Section E2.3 Alternative 4 - ISB Source Area Treatment/Groundwater Confirmation Sampling/ICs, Page E-6; Section 6.6.2.7, Cost Effectiveness, Page 6-24; Appendix E, Section E2.4 Alternative 5 - ISCO Source Area Treatment/Groundwater Confirmation Sampling/ICs, Page E-6, Section 6.7.2.7, Cost Effectiveness, Page 6-29; Appendix E, Section E2.5 Alternative 6- ISCO/ISB/Groundwater Confirmation Sampling/ICs, Page E-7; Section 6.8.2.7, Cost Effectiveness, Page 6-34; and Appendix E, Section E2.6 Alternative 7- ISCO Source Area Treatment/ISB/Groundwater Confirmation Sampling/ICs, Page E-8:** These alternatives propose quarterly groundwater sampling for 3 years for Alternatives 4 and 7 and 1 year for Alternatives 5 and 6, but it is not clear whether there will be residual contamination; if there is residual contamination, it is likely that semi-annual or annual groundwater sampling will be required for several years (See the comment on Sections 5.1.4 and 5.1.5) to evaluate when the ICs would no longer be required. Please revise the costs to include additional groundwater monitoring on at least an annual basis until RAOs are achieved. Also, please revise the descriptions of these alternatives that occur throughout the document (e.g., Section 7) to reflect any changes made in response to this comment.
24. **Section 6.9.1, Description of Alternative, Page 6-36:** There is an apparent contradiction between the last two sentences; the second to the last sentence states that the assumed duration of confirmation sampling is one year, but the parenthetical comment in the last sentence indicates that the period of confirmation sampling is four years. It is likely that more than one year of groundwater sampling will be necessary. Please resolve this discrepancy and revise the cost estimate, if necessary.

25. **Table 7-1, Comparative Analysis of Remedial Alternatives by Balancing Criteria, Page 7-3:** Although it is understood that the no-action alternative scores highest in terms of cost because no costs are incurred, it is not very meaningful to limit the high ranking to this alternative. Alternative 2 - Groundwater confirmation sampling/ICs should also score High in terms of cost, since it is considerably cheaper than the next highest cost alternatives (4 and 5) which score medium. Please revise the comparative analysis of alternatives to score Alternative 2 "high" in terms of cost.

#### **ARARs COMMENTS (Appendix B)**

1. **Page B1-4, discussion of Remedial Action Objectives,** appears to have been copied from the original FS and is not consistent with earlier discussion of RAOs in this FS.
2. **Appendix B, Applicable or Relevant and Appropriate Requirements, Section B2.1.3 Air ARARs Conclusions, Page B2-2:** This section indicates that air Applicable or Relevant and Appropriate Requirements (ARARs) were not identified for this response action because, "Neither activity is expected to be a potential source of air emissions;" however, the FS elsewhere acknowledge that the ISCO process will generate off-gas emissions. It is unknown what the off-gas emissions will be comprised of prior to pilot testing, therefore air ARARs should be identified for this process. Please revise the FS to include action-specific air ARARs for the ISCO process.
3. **Page. B2-2.** The FS states, "Groundwater beneath Alameda Point (including IR Site 26) is not used for drinking water, irrigation, or industrial supply."
4. **Page. B2-3.** The FS states, "The USEPA further clarified that the groundwater underlying the central region of Alameda Point should not be considered a drinking water source in the letter from Anna-Marie Cook (USEPA 2000)." This is not a correct characterization of the 2000 letter. In that letter, EPA stated that "it seems unlikely that the groundwater in this area will be a potential source of drinking water in the future."
5. **Page B2-4.** The FS states, "Because it has been determined that the groundwater in the uppermost aquifer at IR Site 26 is not a potential source of drinking water, the MCLs and MCLGs are not potential ARARs." This is an overstatement. This groundwater is an unlikely, but still potential, source of drinking water.
6. **Page B2-5.** Discussion of portions of 22 CCR 66264.94 as ARARs. EPA agrees that portions of 22 CCR 66262.94 should be considered relevant and appropriate, as noted in both the text and in the ARARs chart. We have several concerns, however, with the discussion of this ARAR on page B2-5.  
(a) EPA would recommend inclusion of the substantive portions of 66262.94(d), even though we understand that it is directed at DTSC rather than the Navy. A list of substantive factors to consider in developing a concentration limit is somewhat different

from a procedural requirement.

(b) EPA disagrees with the Navy's analysis of what limits are technologically and economically achievable. It is an overstatement to state that since the groundwater is not a drinking water source, there is no benefit from attaining further reduction than required to mitigate threats from other exposure pathways. To the contrary, there is benefit in reducing the contamination in a potential drinking water source and protecting the resource for future use, even when actual use of the water for drinking appears to be unlikely. Additionally, leaving the groundwater at present levels does not alleviate the risk of accidental ingestion. In terms of economic feasibility, the FS indicates that hot-spot remediation is economically feasible, especially considering the cost savings from not having to maintain, monitor, and enforce ICs indefinitely.

(c) Finally, we note that 66264.94(e) requires that concentration levels greater than background cannot exceed either MCLs or the lowest concentration found to be technologically and economically achievable.

7. **Page B2-6. discussion of NAWQCs., second paragraph.** We recommend the second sentence be changed to: "Although the NAWQC are nonenforceable guidelines, they may be potentially relevant and appropriate, but generally only in the absence of promulgated MCLs or MCLGs."
8. **Page B3-7, Endangered Species Act.** (a) EPA agrees that substantive portions of the ESA are ARARs and that consultation requirements are procedural and not ARARs. However, including the consultation requirements as TBCs is a misinterpretation of what a TBC standard is; TBCs refer to nonpromulgated standards, not procedural requirements. EPA recommends removal of the final sentence of the first paragraph ("However, they may be TBCs to comply with the substantive provisions of the ESA"). Nevertheless, EPA does recommend that the Navy comply with the consultation requirements in the ESA to ensure compliance with the substantive requirements that are ARARs.  
(b) Second paragraph, insert "16" before "USC 1536...."